

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

In the Matter of Electric Vehicle Policies

Case 13-E-0199

COMMENTS OF CHARGEPOINT, INC.

In accordance with the direction provided in the New York Public Service Commission (Commission) Notice of New Proceeding and Seeking Comments (Notice) in the above-captioned proceeding, ChargePoint Inc. (ChargePoint) submits the following comments.

The proceeding was instituted to “support consumer acceptance and use of plug-in electric vehicles (PEVs),” and to ensure that the Commission’s regulations and policies “promote the continuing evolution of the market for PEVs and for supporting services, while maintaining the safety and reliability of New York’s electric grid.”¹ ChargePoint appreciates the Commission’s initiative in opening this proceeding, and looks forward to discussing and collaboratively developing policies that will both support the markets for PEVs and electric vehicle service equipment (EVSE) and protect the safety and reliability of the grid. In the comments below we provide an introduction and address the Commission’s subjects and questions in the order presented in the Notice.

I. Background

By way of background, we provide below a brief description of ChargePoint, and an overview of the New York market for PEVs and PEV charging.

¹ Notice p.1.

ChargePoint is the world's largest network of independently owned charging stations with more than 12,000 charging spots in 14 countries with over 1,900 organizations providing charging via the ChargePoint network including major employers, municipalities, universities, real estate developers and parking garage facility owners and operators. The stations are currently dispensing more than 1,243 megawatt hours (MWh) of electric fuel each month, the annual equivalent of 3,000,000 gallons of gas avoided and 46 million lbs. of CO2 emissions prevented.

ChargePoint was established by Silicon Valley entrepreneurs with the sole mission to ensure consumers do not hesitate to purchase electric vehicles because they could not find a place to charge them. The company is credited with delivering the first networked "smart" charging station in the U.S. market, and is building a global EV community and the network that connects it. Recognized by Pike Research in 2012 and 2011 as the top ranking manufacturer and provider of EV charging services, the Pike report cited ChargePoint's strategy, implementation and product innovation as the market drivers.²

New York State

New York has the potential to be one of the largest markets for electric vehicles in the world. Governor Andrew Cuomo has recognized this potential and is providing the leadership to "remove regulatory barriers to encourage New Yorkers to use fuel-efficient vehicles, as well as grow the clean energy industry and create jobs in the State."³ Through policies such as ChargeNY, programs and funding from the New York State Energy Research and Development

² Pike Pulse Report: Electric Vehicle Charging Equipment, "Assessment of Strategy and Execution for 14 Global Electric Vehicle Supply Equipment Companies," 4Q 2012, p. 13.

³ "Governor Cuomo Calls For Regulatory Reform to Expand the Number of Statewide Electric Vehicle Charging Stations," Press Release, State of New York, Executive Chamber, Andrew M. Cuomo, Governor, May 24, 2013.

Authority (NYSERDA) and the New York Power Authority, and tax credits recently approved by the New York State Legislature, New York is leading the way for electric vehicle adoption.

New York currently has the third largest number of PEVs in the US, and is ranked fourth in the pace of growth in the purchase of PEVs.



ChargePoint NEW YORK

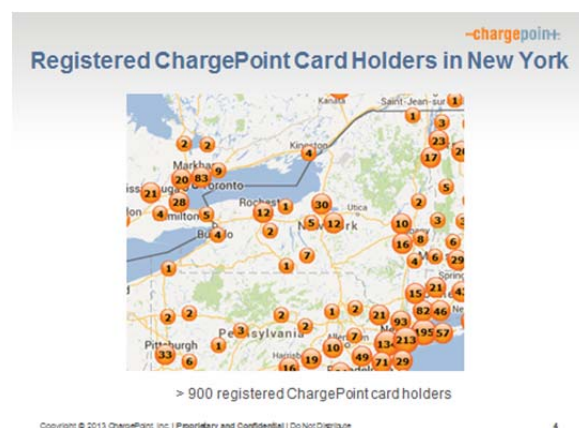
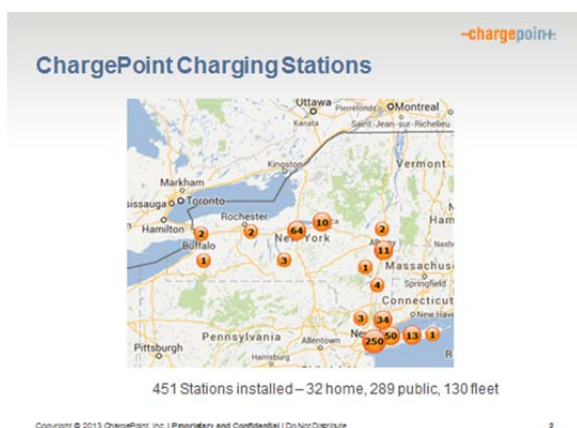
ChargePoint is the leading provider of EV charging services in New York. There are nearly 450 ChargePoint stations installed across the state of New York. The New York City fleet has consolidated on ChargePoint stations and has over 120 stations installed. ChargePoint currently has an estimated 80% of the public stations in the State of New York.

Since 2010 ChargePoint has participated in the Department of Energy ARRA Transportation Electrification Grant and brought funding to New York State and the New York City region to support early adoption. We are currently partnering with NYSERDA to deploy and provide charging infrastructure in New York State, including a partnership with National

Grid to deploy 82 EV charging stations in upstate New York. In addition, ChargePoint has participated in regional planning efforts undertaken by the Georgetown Climate Initiative and NYSERDA.

Sample customers in New York include: Municipalities / State Groups: City of New York, City of White Plains, Village of Haverstraw, Town of Babylon; Workplace: Mastercard, Verizon, Hertz, Celege; Universities: RPI, Stony Brook, Bard, Union, Queens; Hospitals: Cayuga Medical Center, Northern Westchester Hospital; Retail: Walgreens, Kohls; Airports: Kennedy, La Guardia; Hotels: Hilton Garden Inn, Ramada, Hampton Inn, Embassy Suites.

The maps below show all publicly accessible charging stations on the ChargePoint Network in New York State on May 31, 2013 as well as the close to 1,000 card holders utilizing the network. Importantly, all the installations of EV charging infrastructure create jobs in the region. For every charging station deployed, three people go to work: one to manufacture the station, and two to install the station. Close to 3,000 jobs have contributed to the build-out of the EV infrastructure in New York State; and all the installations are local jobs, enhancing the economic development in the region.



The charts below show energy usage on ChargePoint stations as well as greenhouse gas (GHG) emissions savings. Almost 3,000 unique drivers have used the public infrastructure on the ChargePoint network in New York State.



II. Commission Jurisdiction over Charging Stations

A. The Commission should prioritize issuance of a decision on jurisdiction.

ChargePoint strongly supports the Commission’s decision to prioritize determining “whether it will assert or disclaim jurisdiction over publicly available Charging Stations, their operators, or over the transaction between their operators and members of the public.”⁴ An early decision providing regulatory clarity on this important question is important for several reasons.

First, and most importantly, individuals and companies contemplating making an investment in providing EVSE and EV charging services to New York PEV drivers will only do so if they have a clear understanding of the regulatory status of Charging Stations and related equipment. Regulatory uncertainty is a barrier to private investment in infrastructure and services. State regulators in other states have recognized this, and have made issuance of an order addressing jurisdiction a priority.⁵ In a number of other states, a regulatory determination

⁴ Notice p.2.

⁵ See e.g. California Public Utilities Commission (CPUC) *Order Instituting Rulemaking on the Commission’s own motion to consider alternative-fueled vehicle tariffs, infrastructure and policies to support California’s greenhouse gas emissions reduction goals*, Decision 10-07-044 (2010) (Phase 1 Decision) at p.2-3 (identifying resolution of jurisdictional issues a “priority matter” that parties view as “critical to bringing private investment to California for

clarifying that EVSE and EV service providers are not subject to utility regulation has been codified through legislative action, and we expect that this may be the case in New York as well.

In the recently concluded session of the New York State Legislature, two bills representing bipartisan support were introduced to provide for regulatory exemption of EV charging services in New York State. S5110 authored by Energy Committee Chair Senator Maziarz (R., Niagara County) passed the Senate May 30, 2013.⁶ Assemblymember Amy Paulin, chair of the Assembly Energy Committee (D., White Plains) introduced a companion bill, however it was too late in the session for consideration. We expect that New York will probably revive the PEV bills in the next session or at some point in the future, but the Commission need not and should not wait for action by the legislature. The important thing is to provide as quickly as possible a measure of regulatory clarity so that providers of public charging equipment and services understand their regulatory status and can do business in New York. As the Commission notes in the Notice, “the availability of Charging Stations is vitally important to increased customer acceptance and use of PEVs.” The most immediate thing the Commission can do to encourage the availability of Charging Stations in garages, parking lots, apartment buildings and work places is to provide assurances that the third parties providing PEV charging infrastructure and services (including landlords, employers, and parking lots as well as companies like ChargePoint) will not be regulated as utilities.

Second, prioritizing the issuance of a decision on jurisdiction will facilitate the further discussion and resolution of other issues. For example, it would be difficult to develop policies on notification, metering, and privacy without having clarified the regulatory status of EVSE and third party EV service providers (EVSPs). With a clear directive on jurisdiction, the

electric vehicle charging infrastructure”).

http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/121450.PDF

⁶ <http://open.nysenate.gov/legislation/bill/S5110-2013>.

Commission and participating parties will find it easier to discuss and resolve other important policy questions.

B. The Commission should conclude that neither operators, EV charging stations, nor customer transactions are subject to the Commission’s jurisdiction.

The Commission correctly notes that it could read the definitions and jurisdictional provisions in Public Service Law Sections 2, 5 and 64 to support a conclusion that PEV charging is an unregulated service, and that the operator of a Charging Station is not selling electricity but rather providing car charging service and/or equipment to the public.⁷ In this view, the Commission observes, “the fact that electricity is used in the provision of the car charging service is merely incidental and not determinative for jurisdiction.”⁸ With the understanding that the transaction is one for a service and not for the sale of electricity, the Charging Station’s operator would not be an electric corporation, and the EVSE would not be electric plant.⁹

The Commission’s initial approach to the jurisdiction question, as discussed in the Notice, is exactly right and should be adopted in a formal order. As the Commission notes, the sale of charging services by an EVSP has nothing in common with a traditional retail sale of electricity by a utility to a consumer.¹⁰ Indeed, non-utility companies selling charging services are themselves retail customers that purchase electricity from a regulated utility in order to provide charging services, which will in most cases include providing the user access to EVSE, use of related metering and communications software, participation in a network, billing, and various other options. In this respect, a seller of PEV charging services has more in common with an internet café or a cell phone battery-charging kiosk at the airport than with a regulated public utility operating a grid and selling electricity to local businesses and households.

⁷ Notice p.3.

⁸ Id.

⁹ Id. p.3-4.

¹⁰ Id. p.3.

The approach to jurisdiction outlined in the Notice is consistent with the conclusion reached by utility commissions and legislators in other states, which to date have without exception decided that PEV charging equipment and services should fall outside of the jurisdiction of state regulators.¹¹ For example, the California Public Utilities Commission (CPUC) determined that “the legislature did not intend that this Commission regulate providers of electric vehicle charging services as public utilities...”¹² In response to parties raising concerns about system reliability, safety, and other issues, the Commission concluded that its existing authority over utility interconnections and extensions, tariffs governing the sale of electricity to PEV charging service providers, and interoperability standards for communications between the utility system and EVSE submeters provided ample protection for consumers and the grid.¹³

ChargePoint appreciates the acknowledgement in the Notice that PEV charging equipment and services are purchased and sold in competitive markets.¹⁴ This is an important distinction, and one that supports a conclusion that PEV charging equipment and services are not jurisdictional.

¹¹ See California Public Utilities Commission Decision 10-07-044 (2010) and Cal. Pub. Ut. Code §216(i); Pub. Ut. Commission of Oregon Order No. 12-013 (2012) at 5 and Or. Stats. §757.005(1)(b)(G); Va. Code Ann. §§56-1.2 and 56-232.2:1; District of Columbia Council Bill 19-749 (2012); Maryland State Govt. Code §10-101(a) and Pub. Ut. Code §1-101(j); 220 Ill. Compiled Stats. 5/3-105; Rev. Code Washington §80.28.320; Fl. Rev. Stat. §27-366.94; Minn. Stat §216B.02, subdivision 4.(3); Ha. Rev. Stat. §269-1); Colorado Rev. Stats. Ch. 40 §101-104.

¹² CPUC Phase 1 Decision p.1.

¹³ Id. at 23-30.

¹⁴ Notice p.4.

C. Response to jurisdiction questions

To what extent and in what ways would the development of consumer acceptance and use of electric vehicles and of the supporting services for electric vehicles be affected by the Commission's determination that it does or does not have direct jurisdiction over publicly available Charging Stations, their operators or the transaction between publicly available Charging Station operators and members of the public?

Consumer acceptance and use of PEVs and supporting services in New York could be profoundly hindered by a determination that the Commission has jurisdiction over publicly available Charging Stations, their non-utility operators, or the transactions between operators and members of the public. As the Commission has recognized, widespread adoption of PEVs depends on access to charging at public places, including commercial locations, workplaces, apartment buildings and public charging stations at convenient locations. If providers and operators of PEV charging equipment and services at such locations are regulated as utilities, many will certainly decide simply to opt out to avoid the cost and inconvenience. In addition, the burden on the PSC to regulate tens of thousands of retail, commercial, municipal and business owners that are providing public charging would be unwieldy and impracticable.¹⁵ As for third party network charging service providers, a decision by this Commission imposing utility regulation within New York would simply encourage companies to take their business elsewhere. As noted above, across the country regulators and legislators have determined that PEV charging equipment and services are not and should not be subject to traditional utility regulation. New York should adopt a similar approach or risk losing investment in local infrastructure to other states.

¹⁵ Testimony of Richard Lowenthal, Founder and Chief Technology Officer, ChargePoint before the California State Senate, Hearing on AB 631, July 5, 2011.

In determining whether the provisions of the Public Service Law provide it with jurisdiction, should the Commission consider the manner in which a customer is billed for electric vehicle charging services, e.g., per kWh, per hour, day, month, etc.?

No. The manner in which a customer is billed for electric vehicle charging services does not affect the nature of the service provided or the nature of the entity providing that service. A growing and competitive market in EV charging equipment and related services is emerging. In addition to companies whose sole focus is on providing PEV charging services, there are also employers, landlords, universities, and public and commercial institutions investing in PEV charging equipment for public use. This very diverse range of service providers should be allowed to decide how to bill an equally diverse range of customers for PEV charging services.

ChargePoint is not an electric vehicle service provider (or EVSP), but we sell to companies that do provide charging services. Typically these are apartment building owners, employers like Google, Netflix, Dell, and SAP, cities, counties, and parking garage operators. Each one has its own business model for providing charging services. For most but not all employers, it is a free service provided in order to encourage clean transportation. Apartment building owners will typically charge for the service as they do for a coin op laundry. Cities and counties charge cost-recovery fees in order to avoid just giving away electricity at taxpayer expense. Some of these services are free, some are included in rent, and some are pay per use. Over time, we expect most if not all of public charging will be for a fee. Since an EVSP's charging by the kilowatt hour for PEV charging services could be mistakenly characterized as a sale of electricity rather than charging services, the Commission should clarify that all billing methods for PEV charging service, including billing based on kWh, are acceptable.

In sum, there is no justification for making jurisdictional distinctions based on approach to billing. Imposing direct or indirect limits on how a provider may charge customers will limit

customer choice, and discourage innovative and customer-friendly approaches to packaging and billing for PEV charging services. ChargePoint encourages the Commission to expressly clarify that it will not make distinctions on billing approach, and that it will not impose any limits or restrictions on how EVSPs may charge customers for PEV charging services.

If the commenter argues that the Commission should assert jurisdiction over publicly available Charging Stations and their operators, how should the Commission exercise that jurisdiction? For example, should public Charging Stations and their operators be subject to rate regulation?

For the reasons discussed above, Commission should attempt to assert jurisdiction over publicly available Charging Stations or operators. The Commission's question is a good one, though, because it illustrates exactly why the Commission should not try to regulate PEV charging services. As the Notice points out, PEV charging is not a monopoly market. Trying to impose traditional electricity rate regulation on PEV charging services would limit customer choice and harm consumers. If the competitive market is allowed to grow and flourish, consumers will benefit as a result, and service providers will be motivated to provide rates and billing options that customers want.

III. Utilities as Owners or Operators of Charging Stations

Should the Commission allow electric distribution utilities operating in New York state to own or operate Charging Stations:

- a. As part of their regulated operations?**
- b. Segregated from their regulated operations, treating Charging Station assets as nonutility property and revenues and expenses related to Charging station operations as revenues and expenses from nonutility operations?**

Should unregulated affiliates of electric distribution utilities operating in New York state own or operate Charging Stations?

This question has come up in other states, and it is an important one. It is ChargePoint's position that the Commission should entertain utility or utility affiliate proposals for EVSE ownership, subject to provisions that encourage competition and ensure that advanced

technology is brought to consumers. ChargePoint supports the Commission's desire to clearly define the role of utilities in the early PEV market in order to ensure a level playing field and a competitive marketplace for charging service companies. Encouraging the private market to develop advanced products and business models without having to compete with the inherent advantages of utilities ensures market efficiencies and customer choice.

There may be a role for utilities to play in the early market with respect to working with EV service providers to bring products to market and to effectively integrate with the grid. However, the Commission needs to provide some initial clarifications.

Software and networking from EVSPs include an array of services for PEV drivers such as the ability to find a station that is not in use, low cost EVSE embedded submeters, submeter billing, point-of-sale services such as billing drivers on behalf of station-owners, driver authentication, TOU incentives, carbon credit tracking, demand response, frequency regulation, remote monitoring and maintenance, and public station reservations. This software and networking also provides a new opportunity for aggregating and controlling demand response and frequency regulation services across multiple retail customers.

If the Commission decides to allow utility-owned EVSE under any circumstances, it must at the same time ensure that the utilities do not preclude the use of EVSP software and networks to efficiently provide charging services and grid programs to consumers. In particular, to take advantage of advances in networking technology and vehicle charging applications, the utilities must develop architectures that can exploit these third party software and networking systems.

To avoid confusion, the Commission should explicitly state that if and when utilities buy EVSE for any purpose they also are open to enabling the use of third party software and networks. In addition, before approving any utility application to own EVSE, the Commission

should require the utility to:

1. Demonstrate that its market advantages will not harm or otherwise interfere with the competitive market for providing services in residential, commercial and public locations;
2. Demonstrate that utility ownership will not preclude or interfere with *consumer choice* in EV services in residential, commercial and public locations; and
3. Demonstrate that third party service providers are able to offer services on utility owned EVSE (separating ownership of EVSE from provisioning of services to customers, which should be competitive).

IV. Impact of PEV charging on Electric Infrastructure

What steps can be taken to ensure that utilities are aware of new EVCE locations so they can proactively address any necessary distribution facility upgrades?

The most effective mechanism to address concerns expressed by the utility companies and other stakeholders over the potential for PEV clustering and the maintenance of local grid reliability is to require the state Department of Motor Vehicles to share PEV registration information necessary for grid planning with the appropriate utility. As more and more people buy PEVs, utilities may face localized reliability problems resulting from home charging by PEV customers clustered in particular neighborhoods where PEV adoption is more popular. This may require legislation, and at least two states recently passed bills to address this issue.¹⁶ This process provides the utility with a data driven mechanism to track load and proactively address necessary facility upgrades. In both California and Maryland the legislation was sponsored by

¹⁶ See Maryland: SB 998/HB 1279, Chapters 334 and 335, Acts 2012: Motor Vehicle Administration-Plug in Vehicles, Disclosure of Personal Information (http://mlis.state.md.us/2012rs/chapters_noln/Ch_335_hb1279T.pdf); California Senate Bill (SB) 859 Padilla (2011-2012 Reg. Sess.), as introduced on February 18, 2011, would allow the Department of Motor Vehicles to release an EV owner's residential address to an investor-owned utility, publicly owned utility, and their respective agents if that utility uses the information only for the purpose of tracking electric vehicle charging points.

the utilities and supported by EVSE companies. No issues have been raised and the approach has been effective.

Regarding public infrastructure, ChargePoint provides all of the locations of stations deployed for public access free of charge on the ChargePoint network via our website as well through mobile phone applications. In addition, we provide that information at no cost to the National Renewable Energy Laboratory (NREL). NREL is a federally-affiliated organization that collects and distributes information free of charge, so that the information on EV public infrastructure is available. The utilization of public infrastructure information is principally to support driver needs, as discussed below under public access and interoperability.

What customer privacy concerns need to be addressed?

Privacy concerns should be addressed to the extent necessary to protect consumers' confidential information and prevent the misuse of DMV notification information.¹⁷ Specifically, the utilities should be prohibited from using information obtained through a DMV notification program for any marketing purposes. Customers should be notified, and the utilities should be precluded from selling, sharing, or further disclosing residence information of electric vehicles owners.

If distribution facility upgrades are necessary to accommodate PEV charging, should such costs be shared among all customers (i.e., rate-based), or allocated in some other way?

ChargePoint recommends adopting an initial policy of sharing the cost of distribution upgrades needed to accommodate PEV charging among all customers. The Commission can revisit this determination when and if such costs become significant due to widespread PEV adoption, or for other reasons as they may arise.

¹⁷ See Ibid.

There are several reasons why rate-basing upgrade costs (if any) – at least for an initial period – makes sense. First, rate-basing costs is much simpler than trying to ascertain customer responsibility for an upgrade that may be the responsibility of multiple PEV users and/or customers on the same electric circuit who have increased consumption for other reasons. Second, imposing distribution facility upgrade costs, or even concern about the risk of such charges, may discourage customers from purchasing a PEV or “smart charging” equipment that could actually benefit the grid by facilitating off-peak load.

Finally, and most importantly, experience in the “early adopter” states so far indicates that the impact of PEV charging on the distribution system has been minimal. In California the Public Utilities Commission decided in 2011 to adopt a cost-sharing approach for upgrade costs for residential PEV users and to revisit that decision in June, 2013.¹⁸ Last week the CPUC extended its cost-sharing policy for another three years, noting that costs have been minimal to date, and emphasizing that the CPUC “places great weight on the impact of the policy in individual PEV customers and the promotion of PEV adoption in general.”¹⁹ ChargePoint recommends that New York adopt a similar policy, with the understanding that it can be revisited periodically and updated as necessary.

At what level of PEV use would there be transmission level performance impacts? Are there any strategies that could minimize such impacts?

As noted above, so far it appears that PEV use is causing few, if any, negative impacts on the performance of the grid. Moreover, incremental EV load on a larger scale has the potential

¹⁸ See CPUC, *Order Instituting Rulemaking on the Commission’s own motion to consider alternative-fueled vehicle tariffs, infrastructure and policies to support California’s greenhouse gas emissions reduction goals*, Decision 11-07-029 (2011) (Phase 2 Decision) at 58-60.

http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/139969.PDF

¹⁹ CPUC, *Order Instituting Rulemaking on the Commission’s own motion to consider alternative-fueled vehicle tariffs, infrastructure and policies to support California’s greenhouse gas emissions reduction goals*, Decision 13-06-014 (2013) (Phase 4 Decision) at 12.

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M070/K281/70281733.PDF>

to yield improved electricity system asset utilization in the long-term.²⁰ In addition, on a large scale electric vehicle charging occurring during off-peak periods could actually reduce the price of energy for all ratepayers, by optimizing the electricity system's asset utilization. The Commission should endeavor to encourage strategies that will minimize impacts on the grid and maximize asset utilization. These policies include TOU rates, the requirement that EVSE be "smart charging" with the capability of facilitating two way demand response capabilities as third party cloud to cloud services with the utilities.²¹

To what extent can the State's solar photovoltaic (PV) policies, under the NY Sun initiative, be utilized to offset potential increases in peak demand that may result from the expanded use of EVCE, particularly at publicly available charging stations?

ChargePoint has no comments on this question at this time, except to note its general support for policies enabling use of electricity provided by on-site solar PV systems for purposes of PEV charging.

V. Utility Metering and Rate issues

How should the Commission exercise its regulatory authority to ensure that PEV charging, both at Charging Stations and in private locations, occurs in a manner that is consistent with Grid capabilities, e.g., through time of use (TOU) or other rate structures?

Do existing rate structures need to be modified to accommodate the evolution of the PEV market? Are additional measures needed to increase the use of TOU rates for EVCE?

In general, ChargePoint supports rate policies that encourage customers to charge off-peak. TOU rates are one option for accomplishing this, but it is very important at the same time to identify and address obstacles or regulatory requirements that may prevent customers from taking advantage of such rate options. For example, in order to provide customers the option of

²⁰ See Comments of Southern California Edison Company (Oct. 5, 2009) at p. 40; Comments of San Diego Gas & Electric Company (Oct. 5, 2009) at p. 25 in CPUC Rulemaking 09-08-009.

²¹ See discussion herein regarding utility ownership of EVSE and lowering costs of EV ownership.

a TOU rate specific to EV charging load, the Commission needs to facilitate the use of submeters. Otherwise the customer may be faced with the uneconomic option of purchasing a second utility meter in order to enable participation in an EV TOU rate schedule. As the Commission begins to look at rate design, it needs to do so in the context of related infrastructure and metering options.

What additional metering policies or protocols (e.g., dual metering, submetering) may be needed to accommodate various EVCE options?

As noted above, dual metering is generally an expensive and unnecessary requirement that should be avoided whenever possible. In California, the cost of separate metering has resulted in a very low percentage of PEV customers choosing to participate in TOU tariffs requiring separate metering of PEV load. Fortunately, there is a good alternative – submetering.

Many of the PEV chargers currently on the market include embedded submeters that eliminate the necessity of dual metering in order to participate in EV rate options. EVSE submeters also enable a variety of other functions that are useful to customers and beneficial to the operation of the grid, including subtractive billing and provision of valuable demand response and grid management services. California recognized this in its Phase 2 Decision, observing that customer ownership of submeters supports the key policy goals of “customer choice, supporting technological innovation and minimizing cost,” and ordering the timely development of a submetering protocol to support the use of embedded submeters and incorporate subtractive billing into submetering tariffs.²² That process is currently underway. At the same time, national standards for EVSE embedded submetering are being developed by a collaborative group under the leadership of the National Electrical Manufacturers Association (NEMA).

²² CPUC Phase 2 Decision at 41-45.

ChargePoint encourages the Commission to initiate efforts to establish a submetering policy in this proceeding, and to coordinate that effort with the NEMA standard-setting process.

VI. Consumer Issues

What risks face consumers in the market for EV Charging services and how does, or should, the market or other entities address those risks?

This is a very important question that ChargePoint has devoted considerable resources to considering. As acknowledged in the Notice, the nationwide effort to encourage expanded consumer purchase and use of PEVs is dependent on and closely linked in other ways to the availability and quality of PEV charging services.

ChargePoint is the market leader in public EV Charging services with over 68 % of the market in the US and over 1,900 organizations as customers. We have over 41,000 EV drivers on the ChargePoint network. Drivers plug into a ChargePoint station more than 5,800 times every day. We have close to 35,000 EV Drivers on our network and over 66,0000 mobile application downloads.

New York has been a leader in the United States promoting policies that support EV Adoption, including the Governor's ChargeNY program, GHG abatement goals and ZEV Mandates. And while these policies are important to ensuring that air quality continues to improve and that we reduce our dependency on oil, ChargePoint has recognized that in order for this market to scale in New York and the United States we must attract and maintain private investment.

We see the principal risks facing consumers in the market for EV charging services as the following:

- "Chicken and egg" issue inhibits scaled deployment
- Market based financing solutions are needed to lower costs

- Interoperability and open access are necessary for drivers to use public infrastructure
- Solutions are needed to address market gaps such as the need for expanded facilities at multi-dwelling units (MDUs) and workplaces
- High costs of EV adoption and the need to utilize “smart charging” equipment to maximize ratepayer benefits as well as lower consumer costs of adoption
- Myths about EVSE need to be corrected, and customers need access to accurate information in order to make good consumer decisions

We briefly discuss each of these issues below.

1) The Chicken and Egg Problem

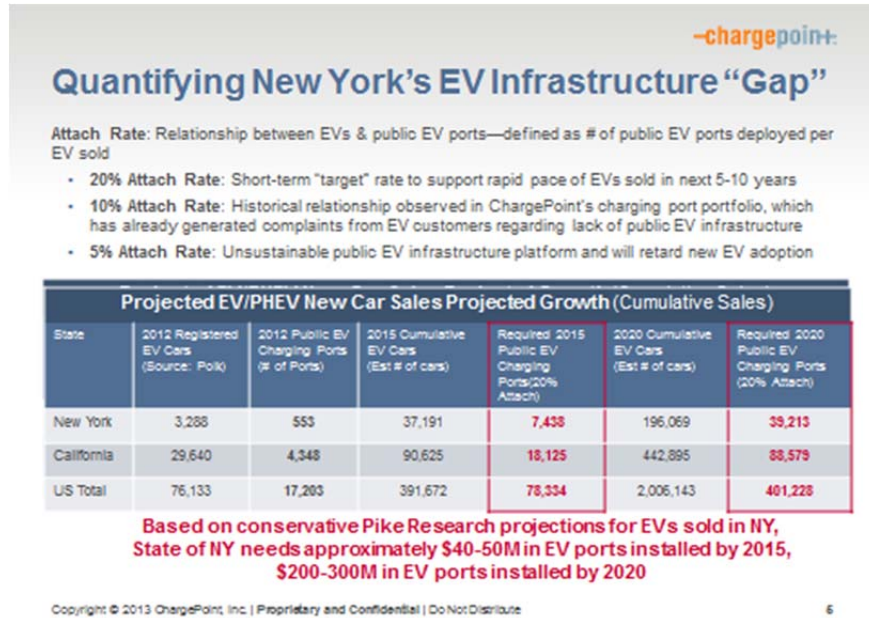
As Governor Cuomo noted in his 2013 State of the State Address: “Increasing PEV ownership requires increasing the availability of charging stations.”²³ There is no way to accomplish one without the other. ChargePoint’s goal in the market has been to ensure that people do not hesitate to purchase an electric vehicle because they do not have a place to charge it. This is the biggest risk facing potential PEV consumers today.

It is projected that with the adoption of a supportive set of policies, the number of plug-in electric vehicles on the road in New York state could increase from less than 3,000 today to 30-40,000 in 2018 and one million in 2025.²⁴

The existence of infrastructure drives EV adoption. There is a direct correlation between the number of EVs and the charging infrastructure to support it. This “attach rate” at 20% is the short term target to support the rapid pace of EV sales in the next ten years. Below is a chart quantifying New York’s EV infrastructure gap. In order for drivers to be confident that they can charge their vehicles where they work, where they shop and where they park, a considerable investment in EV infrastructure is required.

²³ “New York Rising”, Governor Cuomo State of the State Address, October 29, 2012, pp 33-36.

²⁴ Ibid



2) Market Based Financing Solutions

In order to resolve the large scale investment needed to drive EV infrastructure deployment, the State should consider utilizing the resources of the "Green Bank" as well as utility investments or grants to support a public private partnership that is leveraged to create a "win-win" proposition with long-term EV adoption as the underlying policy goal.

As Governor Cuomo also pointed out in the State of the State Address, federal and state grant subsidies are not providing the "biggest bang for the buck" to accomplish the state's mandates and policy goals.²⁵ The EV infrastructure sector should be a priority for the Green Bank. Opportunities to scale deployment modelled after the success in the solar industry utilizing the state's recent tax incentives for EV charging equipment should be considered.

²⁵ Ibid

3) Interoperability and Public Access to EV Charging Infrastructure: Supporting EV Drivers

ChargePoint's mission is to ensure drivers are confident and comfortable that they can charge. We see two needs for the driver: that they can find a station where they need to, and that they can use it.

Current obstacles for drivers and the adoption of EVs include:

- Drivers must sign up with multiple charging service providers, carry different credentials for authentication and authorization, and use multiple payment systems. This problem was solved for cell phones by enabling roaming across multiple networks.
- Drivers must go to multiple sources/websites to find charging stations
- Drivers do not have a uniform and easily-accessed method to determine if stations are in use prior to arriving, or to reserve them

The industry has recognized that gaps and challenges remain to address the goal of ensuring that charging services are available to EV drivers. ChargePoint chairs a NEMA committee that was selected to lead the development of industry standards to address the “gaps” in infrastructure standards affecting EV rollout in the United States. We recognize that collaboration is needed among EV charging service providers and are working with companies such as Eaton, Leviton, ECOTality and GE, under the auspices of NEMA.

In that spirit, ChargePoint has also joined with other EVSE manufacturers to create a new company, Collaboratev, which will provide seamless interoperability to EV drivers among multiple networks across the state. Driver services that will be provided by Collaboratev include:

- The ability to charge on multiple networks using single authentication credentials
- The ability to charge at a station of the driver's choice regardless of where they are or what network they belong to

- Mapping services for all publicly available charging stations that is interactive showing the locations of all available charging stations

New York can play a role in promoting this effort by supporting industry initiatives so that drivers will be able to access charging stations seamlessly and consequently grow the market in the state. Funding support for interoperability development efforts would escalate the program in New York.

ChargePoint is also supporting legislation in California that supports open access to charging equipment for drivers.²⁶ Our contribution to the legislation has been to ensure private property rights are maintained, that private innovation is not burdened by unwarranted regulation and that national standards are not replaced by state standards. Providing the best consumer experience for EV drivers is a top priority and is critical to the survival and market growth of the burgeoning EV industry.

4) Market Gaps in EV Adoption

As New York State embraces EVs – transitioning away from its dependence on petroleum-based fuels and reducing greenhouse gases – some barriers to adoption remain. We see two key market segment gaps that, if addressed, will enhance consumer adoption of electric vehicles: Multidwelling Units (MDUs) and Workplace.

a) MultiDwelling Units (MDUs)

More than one third of New Yorkers reside in MDUs that include apartment buildings, coops and condominiums. A study of electric vehicle deployment methods to enhance electric feasibility in New York City requested by The Mayor’s Office of Long Term Planning and Sustainability found that this is cited as a unique barrier to EV adoption in New York City:

²⁶ California SB 454, Corbett, as amended June 18, 2013.

Despite New York City's goal of facilitating electric vehicle use, the City faces unique barriers that may prevent its widespread adoption. Auto-manufacturers market electric vehicles to homeowners with access to personal garages and driveways for recharging, but nearly half of New York City drivers depend on street parking.²⁷

New York State regional planning efforts led by the Georgetown Climate Center have identified the residential MDU market as critical to MDU adoption.²⁸ In addition, the Department of Energy in the "EV Everywhere Initiative" is also directing ongoing efforts to address this market.

One of the acknowledged largest challenges of rolling out EV infrastructure is to work through the issues presented by MDU applications: apartments, condominiums, and mixed-use living units. Most significantly, in an MDU, the ratepayer and the consumer are not the same person. The consumer, or driver, doesn't own the charging station or the meter to which it is attached. This leads to interesting problems including:

- 1) The electricity going through the charging station and its attached meter may be used by several different consumers during a day, but current meters and the billing system do not include the concept of one meter producing bills that are the responsibility of several consumers.
- 2) In a condominium garage, the condominium association usually pays for "common use" charges on the electric meters, e.g. for garage lighting, however the condo owners who don't have EVs may not want to pay for the EVSE, its electricity, or its maintenance.
- 3) In an apartment building, if the owner doesn't take the first step by installing a station, will that inhibit EV owners from moving in, or inhibit current residents from buying an EV?
- 4) What happens when an EV owner visits an apartment building? Are the policies different for a renter than for a visitor?

²⁷ "Enhancing the Feasibility of Electric Vehicles in New York City," Columbia University, School of International and Public Affairs MPA in Environmental Science and Policy, p.1.

²⁸ See "Lessons from Early Deployments of Electric Vehicle Charging Stations: Case Studies from the Northeast and Mid Atlantic Regions," Transportation and Climate Initiative of the Northeast and Mid Atlantic States, Georgetown Climate Center, May 2013.

These problems, unless tackled, will severely reduce the deployment of electric vehicles in New York State.

Regulatory policies adopted by the Commission should support solutions to these and other issues confronting customers who need to charge their PEVs at MDU locations. Such solutions will involve taking full advantage of the potential for submetering as well as smart charging infrastructure. ChargePoint is currently working with the City of White Plains as well as Long Island Clean Cities to address these challenges in the New York market. Funding for this initiative has been provided by NYSERDA.

b) Workplace Charging

The Governor has recognized “Workplace Charging” as a key driver for EV adoption in New York State.²⁹ We agree.

The majority of EV drivers will be charging at home and at work. The fastest growing market segment for ChargePoint is the workplace. Currently 40-50% of our revenue comes from corporate and workplace customers. The result of the workplace investment in EV infrastructure is the “halo effect.” More electric cars are purchased as workers realize that they have access to EV infrastructure at the workplace.

Google’s investment in EV infrastructure provides a good example of this “halo effect.” ChargePoint has worked with Google to support its objectives and serve as a case study for workplace charging. Google initially invested in EVSE because it has a car-sharing “G-Fleet” program for employees using electric vehicles.

²⁹ Cuomo, p. 33-36.

Google wanted a system for managing the cars and making sure they were plugged in. The first order was for 25 stations. When employees saw the availability of stations, many made the decision to purchase an EV because they realized that they would have a place to charge while at work.

Today somewhere between 200-500 employees are now EV drivers, and Google has purchased enough stations (close to 300) so EV drivers do not worry about fueling. This example can be replicated in New York, with appropriate regulatory support and encouragement.

An additional benefit to charging at work is that this is primarily off peak charging. ChargePoint employees charge their vehicles at one of the 8 stations located at our headquarters. The majority of charging is complete in one and one half hours—from 9am-10:30 am. ChargePoint worked with our partner, Leviton, to enable the first statewide workplace initiative in the State of New York funded by NYSERDA. More outreach and education directed towards this market is critical.

5) High Costs of EV Adoption

Another risk facing consumers in the market for EV charging services is the high costs -- both short term in installation and equipment costs, and longer term in the potential costs related to utility reliability investments. Equipment costs for EV charging have and will continue to go down as the market scales. Streamlining of permitting and planning processes undertaken by regional stakeholder groups are addressing installation costs. However, in order to maximize ratepayer benefits as well as lower consumer costs networked “smart charging” equipment should be utilized, and the state should encourage and support customer investment in such equipment.

The capability of smart charging to provide a new asset for the electricity grid was endorsed in a recent report filed by the Maryland Electric Vehicle Infrastructure Council,³⁰ and recently in the Massachusetts Grid Modernization report filed with the Massachusetts DPU.³¹ Smart Charging refers to electric vehicle charging that responds to software that operates over a network. Some examples of Smart Charging applications are:

- 1) Charging only under authentication
- 2) Point-of-sale billing for charging
- 3) Demand response charging
- 4) Time-of-Use rate dependent charging algorithms
- 5) Grid Regulation services
- 6) Capacity Management services
- 7) Electricity Metering
- 8) Driver Notification of Charge Status
- 9) Real time status of EVSE
- 10) Load distribution
- 11) Charging managed by smartphones

As mentioned previously in these comments, incremental electric vehicle load on a larger scale has the potential to yield improved electricity system asset utilization in the long-term. In addition, on a large scale EV charging occurring during off-peak periods could actually reduce the price of energy for all ratepayers, by increasing the electricity system's asset utilization.

EV drivers should be able to participate in utility demand response programs, frequency regulation, and other ancillary services that provide long term ratepayer benefits.

The Commission should endeavor to encourage utility pilot programs and to enable strategies that will minimize impacts on the grid and maximize asset utilization utilizing smart EVSE. In addition, the Commission should encourage cloud to cloud third party interface

³⁰ "Final Report to the Governor and Maryland General Assembly." Maryland Electric Vehicle Infrastructure Council, December 1, 2012.

³¹ Mass DPU 12-76, Massachusetts Electric Grid Modernization Stakeholder Working Group Process: A Report to the Department of Public Utilities from the Steering Committee, Final Report, July 2, 2013.

between EVSE networks and the utilities to enable two way communications. ChargePoint is currently working with National Grid to test a small demand response program with EV customers as part of a NYSERDA grant. The capabilities, however, are not two way. A recent pilot program filed in Maryland by PEPCO will feature smart charging two way capabilities to enable EV drivers to participate in demand response programs.³² The Commission should consider authorizing similar programs in New York.

6) Myths and Facts about EVSE

As this new market evolves a number of issues have arisen about EV charging, some based on a misunderstanding of the facts underlying EV charging and the capabilities of EVSE. Based on charging data ChargePoint has collected, recent studies, and patterns observed in the market, we provide brief responses to some key consumer issues in the chart below.

ISSUE	FACT
Level One (110 outlet) Charging is Cheaper to install	<ul style="list-style-type: none"> • The cheapest solution for charging two cars at 1.4kW is two household outlets. That solution requires 15 amps of panel capacity • If you don't want to use a travel cord, the cheapest solution is a dual-port 240 volt station. It uses only 12 amps of panel capacity because it can take advantage of the energy management NEC 625 TIA • The most expensive solution is using J1772 to deliver 120 volts •
Level One (110 outlet) Charging is More Efficient	<p>Because of the overhead of battery management and cooling, Level 2 charging is always more efficient than Level 1 charging. See https://www.veic.org/docs/Transportation/20130320-EVT-NRA-Final-Report.pdf</p>

³² Maryland Public Service Commission, Case No. 92621, *In the Matter of the Investigation into the Regulatory Treatment of Providers of Electric Vehicle Charging Services*, "Demand Management for Plug in Vehicle (PIV) Charging in Maryland (PEPCO Proposal), May 13, 2013.

PHEV Drivers do not use public infrastructure	PHEV drivers utilize public charging infrastructure 3X more than EVs. “Gas Anxiety” is a new term that describes the desire to top off charging at public charging locations and avoid using gas altogether.
The “Gas Station Model” should be replicated in EV Charging Infrastructure	EV drivers have adopted a “distributed model” for charging. It is based on convenience and where they live, where they work, and where they shop, and where they eat.
Level II Workplace Charging is “on peak”	<ul style="list-style-type: none"> • The average EV uses 10 kWh per day • If you plug in at Level 1 at 9 AM when you arrive at work and charge 10kWh, you won’t stop charging until after 4 PM, well into peak load time • If you plug in at 6.6 kW Level 2 at 9 AM, you’ll be done charging by 11 AM, avoiding peak load times

To what extent should outreach efforts integrate PEV and Solar PV Information?

ChargePoint encourages outreach efforts to integrate PEV and solar. Currently, about 30% of EV customers take advantage of solar PVs for charging purposes. In addition, load served by distributed generation results in declining utility revenue. We have noted in our comments that EV charging provides an opportunity for new load that can be leveled and utilized by the utilities to provide a more efficient grid to benefit ratepayers overall. In this and other ways PEV load is complimentary to solar PV.

VII. Conclusion

The Commission’s initiation of this proceeding is both timely and appropriate. There is clearly a general consensus that encouraging PEV use is good for the environment, for decreasing emission of GHGs, and for diminishing our country’s dependency on scarce fossil fuels. But widespread customer investment in PEVs will not occur without the assurance of access to public charging. To that end, ChargePoint recommends that the Commission:

- Issue an order clarifying that EVSE, EVSPs, and transactions between EVSPs and EV customers are not within the Commission's regulatory jurisdiction;
- Condition any decision to allow utility ownership of EVSE (whether rate-based or not) on assurances that the competitive market and customer access to competitive services will be protected;
- Support a DMV notification program, subject to appropriate protections for customer confidentiality and consumer protection;
- Defer any consideration of assigning distribution upgrade costs to individual PEV charging customers and allow utilities to ratebase such costs, if any;
- Initiate efforts to develop submetering policies that optimize use of embedded submeters, allow customers to avoid purchasing separate meters, and enable subtractive billing and other functions for the benefit of customers and the grid;
- Adopt policies encouraging and supporting PEV charging at MDUs and workplaces.

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Respectfully submitted,

By: /s/ Lynn Haug

By: /s/ Colleen Quinn

Lynn Haug
ELLISON, SCHNEIDER & HARRIS, LLP
2600 Capitol Avenue, Suite 400
Sacramento, CA 94816
Tel: (916) 447-2166
Email: lmh@eslawfirm.com

Attorneys for ChargePoint, Inc.

Colleen Quinn
Vice President, Government Relations and
Public Policy
ChargePoint, Inc.
1692 Dell Avenue
Campbell, CA 95008
Tel: (917) 523-1813
Email: Colleen.Quinn@chargepoint.com